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INTERSIL ANALOG GLOSSARY

Analog Multiplier - A circuit that produces an output that is linearly proportional to the product of the two analog inputs.

Audio Crosspoint Switch - A crosspoint that isn't high performance, but is capable of handling the larger signals common to audio applications (typically requires power supplies of at least +/-10V, see [CD22M3493/4](#)).

Buffer Amplifier - An amplifier, usually in a gain of 1 or 2, used to drive a heavy capacitive or resistive load.

Cable Driver - An amplifier, usually in a gain of 2, suitable for driving the low resistance of a double terminated cable (load resistance = 150 ohms for video, 100 ohms for instrumentation, see [HA-2842](#), [HFA1114](#)).

Closed Loop Buffer Amplifier - An op amp configured for a gain of 1 or 2, with the feedback network on the IC, thus saving board space (see [HFA1110](#), [HFA1112/13/15](#), [HFA1212/1412](#)).

Crystal Oscillator - A circuit whose output is an AC signal (square wave or sine wave) at a fixed frequency (oscillation) set by an external piezoelectric crystal. Changing crystals changes the output frequency. The frequency of a crystal oscillator is more precise than that of an R-C oscillator (see [HA7210](#)).

Current Feedback Amplifier (CFA) - A newer, high performance architecture that delivers higher bandwidth and slew rates at much lower supply currents (all the pre-1999 HFA op amps are CFAs).

Differential Amplifier - 1) Two transistors connected as a differential pair, with a third transistor (tail transistor) connected to the common emitters (see [CA3102](#), [CA3054](#), [HFA3102](#)). 2) An op amp configured to amplify the difference between 2 input signals.

Differential Pair - Two transistors connected in a differential configuration (emitters connected together, see [CA3X46/86](#))

Diode Array - Multiple discrete (usually unconnected) diodes on a single silicon chip.

General Purpose Timer - Usually an R-C oscillator providing a square wave output, with various control signals to perform Reset and gating (on/off) functions. Control signals allow generation of single pulses (monostable), continuous pulses (astable), or a burst of a fixed number of pulses at the output (see [ICM7555](#)).

Gilbert Cell - An analog multiplier configuration useful for implementing mixers, up and down converters (see [HFA3101](#)).

Long Tailed Pair - Same as Differential amplifier definition 1) (see [CA3102](#), [CA3054](#), [HFA3102](#)).

Matched Transistor Pair - Two very similar transistors, on a single silicon chip, with specified matching characteristics (usually V_{be} and β) (see [HFA3134](#), [HFA3135](#)).

M-Channel Multiplexer (Mux) - An IC that connects 1 of M inputs to the output under digital control.

MxN Crosspoint (or Matrix) Switch - A matrix of switches configured with M inputs and N outputs. Under digital control, any output may be connected to one of the inputs.

Precision Op Amp - An op amp with very high open loop gain and common mode/power supply rejection ratios, and very low offset voltage and offset current. It is ideal for accurately amplifying signals, while introducing minimal error (see [HA-5127/37/47](#), [HA-5221/22](#)).

Open Loop Buffer Amplifier - A unity gain (gain = 1) amplifier not using a feedback network (loop). Thus it's "open loop" (see [HA-5002](#), [HA-5033](#), [HA4600](#)).

Operational Amplifier (Op Amp) - A general purpose, closed loop, amplifier used to implement linear functions. Its performance and function are defined by the external components (feedback

network or loop) surrounding it.

Operational Transconductance Amplifier (OTA) - A differential amplifier that converts the difference between the input voltages to a proportional output current (see [CA3080](#), [CA3280](#)).

Output Disable Op Amp - Also referred to as a "gated amp". An op amp whose output can be set to a high impedance state, so outputs from multiple amplifiers can be connected together (multiplexed) (see [HA-5020](#), [HFA1145/49](#), [HFA1245](#)).

Output Limiting Buffer - A buffer with external pins (VH and VL) that define the maximum positive and negative output swing. Connecting reference voltages to these pins "limits" the output swing to this voltage range (see [HFA1113/15](#)).

Output Limiting Op Amp - An op amp with external pins (VH and VL) that define the maximum positive and negative output swing. Connecting reference voltages to these pins "limits" the output swing to this voltage range (see [HFA1130/35](#)).

Pin Driver - A very high performance 2 channel mux used to switch between 2 voltages at a very high rate, and drive a test "pin" on automated test equipment (ATE).

Programmable Gain Buffer - An amplifier that can be used in a fixed number of user-selectable gains (typically +/-1 and 2). The feedback network is on the IC, thus saving board space (see [HFA1112/13/15](#), [HFA1212/1412](#)).

R-C Oscillator - A ckt whose output is an AC signal (square wave or sine wave) at a fixed frequency (oscillation) set by an external resistor and capacitor. Changing R or C changes the output frequency. Most general purpose timers are R-C Oscillators.

Sample and Hold Amplifier - An op amp whose input may be turned on to sample a voltage, then turned off to hold the sampled voltage at the output, while an ADC converts the voltage to a digital number.

Single Supply Op Amp - An op amp operating off a single supply voltage (typically +5V or +3V) vs. one requiring dual supplies (e.g., +/-5V or +/-15V).

Transistor Array - Multiple discrete (usually unconnected) transistors on a single silicon chip.

TTL (or CMOS, ECL, etc.) Comparator - A voltage comparator whose high and low output levels match the requirements for TTL (or CMOS, ECL, etc.) logic family input levels.

Variable Gain Amplifier (VGA) - An amplifier whose gain can be varied by an external analog or digital control signal. A VGA can be implemented with an OTA (see [CA3080](#), [CA3280](#)).

Video Crosspoint Switch - A crosspoint that has the high level of performance required for video applications

Voltage Comparator - An amplifier that compares the magnitude of the voltages at its 2 inputs, and outputs a "high" level if $+IN > -IN$, or a "low" level if $+IN < -IN$. Basically a 1-bit ADC.

Voltage Controlled Oscillator (VCO) - A ckt whose output is an AC signal (square wave or sine wave) at a fixed frequency (oscillation) determined by the voltage on a control input. Changing the voltage changes the output frequency (see [ICL8038](#)).

Voltage Feedback Amplifier (VFA) - The original op amp architecture, especially useful for low noise and precision applications. Nearly all of the CA and HA type op amps are VFAs.

Voltage Follower - An op amp connected in a gain of 1 (unity gain).

Waveform (Signal) Generator - An oscillator that generates multiple output waveforms (sine, triangle, square waves) at the same frequency (see [ICL8038](#)).

2 Quadrant Analog Multiplier - A multiplier where the control input must be a positive voltage.

4 Quadrant Analog Multiplier - A multiplier where both inputs (signal and control) may be positive or negative.